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Assessing the effectiveness of financial regulation in the English Football League – ‘The dog that didn’t bark’

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Abstract

Purpose

This article provides an assessment of the effectiveness of the Salary Cost Management Protocol, a form of financial regulation introduced by the English Football League (EFL) in 2004 to improve the financial sustainability of professional football (i.e. soccer) clubs.

Design/methodology/approach

The analytical approach is to assess the effect of the regulation from evidence of change in measures of the financial performance of clubs drawing on three criteria: profitability, liquidity and solvency. A unique database was created from the published financial statements and notes to the accounts of the clubs in the Tier 4 league (known since 2004 as League Two) from 1994 to 2014 to encapsulate the ten year period before and after the regulation was introduced. To show trends in the data within the study period the data is reported in graphical form. The statistical significance of change in both the slope and intercepts for trends between breaks of interest in the data is estimated by linear regression.

Findings

The results show that financial regulation failed to significantly improve the profitability or the solvency of football clubs in League Two. Whilst the liquidity of the clubs improved in response to the introduction of the financial regulation, the results show this was only in the year in which the financial regulation was introduced.

Research implications

The results extend theoretical debate on financial regulation in sports leagues by moving beyond the assumption that financial regulation is a ‘technical exercise’ to provide an alternative way of thinking about financial regulation as a ‘legitimising exercise’.

Originality/value

This is the first study to assess the impact of financial regulation for football league clubs over a longitudinal period. It also extends previous research in which only single aspects of the financial sustainability of football clubs, such as insolvency, have been considered.

Keywords: Financial instability; financial regulation; professional football; organisational legitimacy

Article classification: Research paper

1. Introduction

Professional sports leagues have, from their very early days, implemented measures aimed at regulating the labour market. These include measures designed to control the quantity of talent employed by teams, such as the 'retain and transfer' system operated in professional football, and measures focused on the price of talent, such as a maximum wage for individual players; restricting wages to a percentage of average team revenue; and restricting wages to a percentage of own team revenue. This article is focused on this latter type of measure, which was introduced in 2004 by the English Football League (EFL) and applied to clubs in the Tier 4 league of professional football in England (now called 'League Two')¹. The regulation was called the Salary Cost Management Protocol (SCMP) and it was implemented as a 'hard'ⁱ salary cap, as it initially restricted the amount of permitted player-related expenditure for each club to 60 per cent of its income, with a reduction to 55 per cent in 2011.

The EFL introduced this regulation as a direct response to the collapse of ITV Digital, the company that held the TV broadcast rights for the EFL. At that time, it was reported that ITV Digital owed the EFL £185 million for the remaining period of the contractⁱⁱ. By then, however, clubs had increased their expenditure commitments in anticipation of future income from this contract and the former chairman of the Football League stated that "Club finances were in meltdown. Most clubs, typically, had 'spent in advance' all three years' money of the ITV contract. That is, they had literally spent it or had legally committed it to player contracts. Unfortunately for them, only about eighteen months' money had actually been transferred to clubs – hence the chaos." (Mawhinney, 2013 p. 283). The SCMP was therefore introduced with the stated aim of improving the financial sustainability of football clubsⁱⁱⁱ.

The central research question underpinning this article is: did the SCMP regulation introduced by the EFL in 2004 improve the financial sustainability of the clubs in the Tier 4 league of professional football in England? The article therefore provides an assessment of the effectiveness of the SCMP regulation in achieving its stated aim^{iv}. The financial sustainability of the clubs is assessed against three financial criteria: profitability, liquidity and solvency. The primary data source for the study is the financial statements and related notes to the accounts which have been obtained from the statutory financial accounts filed at Companies House by the clubs in League Two for financial periods corresponding to each season ending from 1994 to 2014 inclusive. To provide a comparative assessment with a control group, which is similar to League Two in important respects, but was not subject to the introduction of the financial regulation being studied, data was similarly obtained for clubs in the Tier 3 league (known since 2004 as League One) in the same period^v. To show trends in the data within the study period the data is reported in graphical form. The statistical significance of change in both the slope and intercepts for trends between breaks of interest in the data is estimated by linear regression.

This study makes three contributions to the sports economics literature relating to the financial sustainability of football clubs and the effects of regulation applied to professional sports leagues. First, it assesses the impact of financial regulation over a ten-year period: this

¹ As the names of the leagues changed at the mid-point of the study, when the regulation was introduced, we adopted the 'generic' Tier x terminology to try to avoid confusion.

longitudinal approach has not been undertaken in previous research and as a result there is no understanding of the impact of financial regulation over this extended period of time. Second, the focus on profitability, liquidity and solvency provides a more thorough analysis that extends previous research in which only single aspects of the financial sustainability of football clubs, such as insolvency, have been considered (e.g. Beech et al, 2008; 2010; Szymanski, 2012). Football clubs are businesses and, as such, any assessment of financial sustainability needs to take into account these three aspects. Third, we extend theoretical debate on financial regulation in sports leagues by moving beyond the assumption that financial regulation has been designed to achieve its stated aims and that regulation is a 'technical exercise' to provide an alternative way of thinking about financial regulation as a 'legitimising exercise'.

The article begins with a discussion of the literature on financial instability in professional football setting out the methodological and analytical limitations in prior research. This is followed by a discussion of the methods. That includes details of the database employed which was created from the financial statements and notes to the accounts of the clubs in League Two from 1994 to 2014. The results then set out the impact of the regulation on the profitability, liquidity and solvency of the clubs in League Two. Following this, the analysis draws on organisational legitimacy to put forward one potential explanation for the findings that financial regulation failed to significantly improve the profitability or the solvency of football clubs in League Two.

2. Financial instability in professional football

There is an extensive literature on the economics of professional sports leagues and of individual professional sport clubs. Within this, a key question is why football clubs are typically financially unstable. For example, Barajas and Rodriguez (2014) applied a version of the model used to predict financial distress in firms which Altman (2000) proposed, to identify the determinants of the poor financial situation of professional football clubs in the leagues in Spain. They conclude that to get to a safe financial situation, on average in the Spanish football leagues, clubs require an injection of equity capital, an increase in revenues and a reduction in both wages and current liabilities. The cause of insolvency of football clubs is the subject of research by Beech et al (2008; 2010). They identified five situations ("archetypes") characteristically associated with the insolvency of football clubs in England: clubs that have failed to cope with relegation; clubs that have failed to pay monies due to the government; clubs that have seen 'soft' debt become 'hard' debt; clubs that have lost the ownership of their stadium; and the 'repeat offenders'. Szymanski (2012) uses data for 37 seasons from 1973/74 to 2009/10 to test the hypothesis of exuberant spending or demand shock as alternative causes of insolvency of English football clubs and finds support for the latter. This research was extended by Scelles et al (2016) to examine insolvency in the top three divisions in France which also found that "... demand (attendance) shocks can account for insolvency to a significant degree." (ibid., p. 1). Barajas and Rodriguez (2010) also tested for the probability of insolvency in Spanish football clubs but they found the accounting data 'questionable' due, for example, to the large number of "unqualified opinions" (ibid, p. 54) in the audit reports and they were unable to identify an effect.

Sport economists have long recognised the structural characteristics that underpin financial instability. Sloane (1971) recognised the extent to which clubs in the third and fourth divisions of professional football in England were dependent on income from supporters clubs and that yet many still made a loss over the course of the financial year. He noted that financial instability was masked by the fact that clubs would often pay large sums to obtain the signature of star players, which underpinned his argument that clubs were utility maximisers rather than profit maximisers. Indeed, the incentives for football clubs to spend money to achieve sporting success have been extensively analysed in the sports economics literature. The mechanism that induces clubs to spend increasingly large sums of money on talent to achieve sporting success has been likened in the literature to that of an 'arms race' for talent (Szymanski, 2012). Whitney (1993) uses the term "destructive competition" for "... a competitive process which drives some participants from a market even though it is inefficient for them to leave." (ibid., p. 100). This process of "destructive competition" is evident in light of football club insolvencies. Deloitte (2013) cited 57 cases of insolvency involving 45 clubs from 1992 to May 2013. However, in all cases the club survived, except for Aldershot FC which failed in 1992 (but even there supporters quickly formed Aldershot Town AFC instead). This experience led Kuper and Szymanski (2009) to observe that "In most industries a bad business goes bankrupt, but football clubs almost never do" (ibid., p. 106). Hamil and Walters (2010, p. 361) noted that "In effect, football trades on its status as one of the most powerful cultural and social assets in the country", whilst Storm and Nielsen (2012) argue that the paradox of a high survival rate of football clubs, despite persistent deficits and growing debts, can be explained by the 'soft' budget constraints that football clubs operate within. They conclude that "decision makers and managers expecting bailouts or support in case of financial trouble ex post have strong incentives to increase expenditure above the initial budget, leaving the additional costs, that is firm deficits, for the principal to pay, thus resulting in a softening of their budget constraints." (Storm and Nielsen, 2012, p. 189).

Despite analysis identifying the underlying reasons for financial distress, and the recognition that financial regulation is required to address financial instability (e.g. Buraimo et al., 2006; Hamil and Walters, 2010), there has been limited attention given to the impact of regulatory measures that have been implemented to address financial instability within professional football clubs. At the same time, there has been little analysis underpinning why financial regulation is implemented. The relatively recent introduction of the Financial Fair Play (FFP) regulation by the Union of European Football Associations (UEFA, 2012) has provided focus however for a small number of studies. For example, Müller et al (2012) provide an empirical and theoretical foundation for this regulation, while Sass (2012) presents a multi-period mathematical model which shows the increasing competitive dominance of large market teams being dampened by the FFP regulations. Evans (2014) provides a graphical representation of a model of the FFP regulation introduced initially by UEFA and identifies the possibility of a consequent "death spiral" whereby every response of a club to violation of the regulation leads to a further violation. Furthermore, Peeters and Szymanski (2013) take the approach of simulating the impact of FFP on the finances and sports results of European clubs and estimating its effect empirically.

The current literature on financial regulation in professional sport, and in particular relating to professional football, however is limited in two respects. First, it fails to examine the long-term impact of introducing financial regulation on football club financial performance. In part

this is due to the fact that the UEFA FFP regulation was only introduced in 2012 and as yet, there is an insufficient period to perform a quantified assessment with actual data of its effect on the clubs or on the competitions that they participate in. Second, previous literature has only looked at a single aspect of the financial sustainability of football clubs. Beech et al (2008; 2010) and Szymanski (2012) for example only consider insolvency and do not take into account additional measures of financial performance that would provide a more thorough and rigorous analysis. In particular, Altman (1968) noted that traditional ratio analysis studies (such as Beaver, 1966) in general, found that "... ratios measuring profitability, liquidity and solvency prevailed as the most significant indicators [to predict bankruptcy]. The order of their importance is not clear since almost every study cited a different ratio as being the most effective indication of impending problems. (ibid, p. 590) These two methodological limitations inherent in previous research will be addressed in this article.

A further issue relates to the interpretation, or analysis, of previous data. Existing research has been underpinned by an explicit, or implicit, assumption that financial regulation has been designed to achieve its stated aims – for example, that it will improve the financial performance of professional sports teams. The underpinning assumption is that regulation is essentially a 'technical exercise' and perhaps without addressing the two previous methodological points, there has not been the opportunity to fully examine and analyse the impacts of financial regulation that can help to inform assessment of *why* it has been implemented. There have not been any studies that have drawn on organisational legitimacy as a lens with which to view the implementation of financial regulation in sport. The concept of legitimacy is central to institutional theory and recognises that firms make normatively rational choices that are shaped by the social context of the organisation in order to establish congruence between the social values associated with or implied by their activities and the norms of acceptable behaviour in the larger social system of which they are a part (Suchman, 1995). As Pfeffer and Salancik (1978, p.194) state, an organisation is legitimate "when it is endorsed and supported by a segment of society large enough to ensure its effectiveness and survival". Thus stakeholder groups, both external and internal (with unequal power and ability to influence the actions of an organisation), can confer different conceptions of legitimacy to an organisation. In these circumstances, an institutionalized activity can be seen as a way for an organisation to achieve survival by managing, for example with "impression management tactics" (Schlenker, 1980, in Elsbach and Sutton, 1992, p. 700). Ashforth and Gibbs (1990) called this the 'symbolic' approach to legitimacy while Pfeffer (1982, p. 246) called it "a form of confidence game" in which the organisation seeks to appear consistent (legitimate) with social values and expectations regardless of, and possibly counter to, organisational requirements for efficiency. To date, there has not been any consideration of these constructs in respect of financial regulation in sport. The third way that this article contributes to theoretical debate is through applying legitimacy as a conceptual tool with which to frame the implementation of financial regulation in professional sport.

3. Methods

The overall approach is to collect data on three criteria of financial sustainability from the company accounts of the clubs in the league (namely liquidity, profitability and solvency); adjust the data and create measures to maximise the validity of comparability (both between years for each club and between clubs); identify trends in the measures and the statistical

significance of differences in trends between the period before and with the financial regulation; and assess the results relative to a control group. The visual inspection method is used to identify trends and suggest candidate break points. Statistical methods, such as Chow tests and tests for structural breaks using STATA14 (with and without imposing a break date) were tried but suffered from inadequate period lengths and consequently failed to identify significant breaks. Using these methods all measures would have resulted in an even stronger conclusion of 'no effect' being reached. Each of these stages is described in more detail in the following sub-sections.

3.1. Data

Almost all clubs in the Football League operate as limited liability companies. These companies have a statutory obligation to file financial accounts with the Registrar at Companies House in the United Kingdom. The correspondence of football clubs to company references has been created by a detailed examination of the company accounts records. The company accounts for football clubs do not always have the same name as the club and sometimes a club has multiple company accounts so care needs to be taken to ensure that the correct accounts are identified and adopted for the study. This also involved considerations such as the description of the principal activity of the company and, where available, any description of the business provided in the accounts. Links between companies for the same club were also identified from notes to the accounts. In some cases whether the accounts related to the operation of a football club could be determined by the values reported.

The financial data collected from the company accounts has resulted in the creation of a unique database of accounts for clubs in the Tier 4 and Tier 3 leagues from 1994 to 2014 which is both extensive in its coverage of financial variables and rich in content. It also recognises considerations identified in the notes provided to the reported financial statements. Statutory accounts were filed for 449 (i.e. 94 per cent of the 478) club seasons for the Tier 4 league in the study period. These filed accounts provide the primary data source for analysis. On occasion, companies have provided subsequent financial statements to amend their previous submission. In these cases data was taken from the most recent (amended) accounts filed. Twenty nine of the accounts (6 per cent of the potential population) for the clubs in the Tier 4 league in the study period were not available. Of these, nineteen accounts (4 per cent of the potential population) are missing in the period preceding the SCMP regulation and ten (2 per cent of the potential population) are missing from the period with the regulation. In some cases the club was operating as a society under the Co-operative and Community Benefit Societies Act governed by the Prudential Regulation Authority. In these cases the club was not required to file statutory annual accounts with the Registrar at Companies House. In other cases, where filing was required, it is not possible to determine the reason for accounts not being filed as this is not provided. However, it is noted that some of the missing accounts are for years around periods of insolvency and/or a process of legal administration.

The reported accounting data has been 'smoothed' by a two stage process. First, in some cases it is apparent from the notes to the accounts that the financial data reported does not provide valid comparative data either for the same club between seasons or with other clubs. Where it has been possible to identify these cases and quantify the appropriate adjustment

these adjustments have been made to the 'raw' data reported in the company accounts to improve the completeness and/or consistency of the data in the database. As an example, Torquay United received a loan from directors which was classified as a current liability until 1996 when it was reclassified as a long term liability. For consistency this amount (£480,980) is shown as a long term liability rather than a short term liability in 1995. Furthermore, in some cases it has been possible to adjust or eliminate specific data observations that are known to be affected by factors not relating to the financial regulation introduced. However, there will be many other similar factors affecting the data which are not known to the researcher. For example, a club may sell a player for an undisclosed amount which does materially affect the data for that club for that year. Each data point can be considered to consist (at least potentially) of information that the study aims to evaluate and information that is not relevant to the study – respectively the 'signal' and the 'noise', terms recently popularised by Silver (2012). The aim of the data smoothing is to create a data set in which the data contains the most signal relative to noise.

To reduce the proportion of noise further, a second stage of 'smoothing' has been applied to the data. It is assumed that outlying values for changes in a measure for a club relative to all other (on-going) clubs in the league were due to factors other than the introduction of the regulation which could not be identified or separately quantified. Winsorising was applied to the data for each year to moderate the effect of the non-regulatory influences. Rather than set an arbitrary limit for this smoothing (such as the top and bottom 5%) the approach based the limit on standard deviations from the mean value for the clubs in the league. This approach is better suited to the data when there are only a few observations and the outlier(s) are only at one end. This method iteratively limits the largest and smallest observations in each year to the limits of a 95 per cent confidence interval around the mean for the data in that year.

As the Tier 4 league operates with a system of both promotion and relegation the seasonal data is subject to change both as a result of changes by teams that remain in the league and by the change in composition of the league due to the 'open' league system. To separate these influences, and to provide a focus on the effect of the financial regulation, the data for clubs that are either promoted or relegated into the league from the previous season is removed. This is necessary to remove the bias that would arise from clubs that were promoted and relegated into the league as they were not subject to the regulation in the previous season and so the change in measures between the previous year out of the league and the current year in the league for those clubs is (potentially) different to the other clubs which were under the same regime in both the current and previous season. Data for clubs with no available data for the previous season is also removed so that the remaining data enables a 'like-for-like' comparison of the change that occurred for the measure with the same clubs from the previous season. This provides a clearer assessment of the effect of the financial regulation on club owners in the league. However it must be noted that, as the composition of the ongoing clubs in the league changes every season, the strict validity of this approach depends on the assumption that the absolute effect of the regulatory change on clubs is independent of the size of the club. In other words, it is assumed that the absolute effect of the regulation is the same on a league with large clubs as it is on a league with small clubs. The annual change for each ongoing club in the league is then averaged to produce a summary measure of change for the league for each season.

To assess whether differences identified by the analysis of the measures for the Tier 4 league may be attributed to the financial regulation the data is also analysed relative to a control group. The ideal control group is identical in all important respects to the group of interest (i.e. the Tier 4 league) except in that the phenomena being assessed only applies to the group of interest. The Tier 3 league provides a natural close approximation to the ideal control group for the Tier 4 league. Although the higher league attracts greater demand and consequently related costs, it is similar in all other critical aspects to the Tier 4 league except in that the SCMP financial regulation was not applied to the Tier 3 league until 2012^{vi}.

Consequently, the data analysed for each of the financial measures is formed in four stages. In the first stage the original data is smoothed. In the second stage, to remove change due to the change in composition of the leagues, the difference was calculated between the average for clubs in the league in a season and the average for same clubs in the same league in the previous season (i.e. the ongoing clubs). The measure for each season was then formed from the average change of the ongoing clubs in the league. The final stage was to relate the 'treatment group' (i.e. the Tier 4 league) to the 'control group' (i.e. the Tier 3 league) by subtracting the average difference for the ongoing clubs in the Tier 3 league from that for the Tier 4 league for each season to form the data set for analysis with each measure.

3.2. Measures

Studies have found that ratios measuring profitability, liquidity and solvency provide a broad view of the financial sustainability of a business (e.g. Beaver, 1966; Deakin, 1972). Profitability is cited in the literature as a particular problem with the financial sustainability of football clubs (e.g. Sloane, 1971). Liquidity is essential to ensure the immediate survival of a business and solvency is key for the long term financial sustainability of a business. Consequently, measures of each of these aspects of a business are adopted for this study to provide a broad assessment of the effect of the financial regulation on the financial sustainability of football clubs in the league.

Profitability is measured by retained earnings for the accounting period (not the accumulated balance) rather than EBIT. The reason for adopting this measure is that it can be obtained for clubs even when they do not report a profit and loss account (as is often the case due, in large part, to filing exemptions for profit and loss accounts granted to small businesses) by differencing the accumulated balances for the current and previous year. Inspection of the accounts that did disclose the profit and loss account showed that the approximation used was reasonable for the study. Interest, tax, minority interests and dividends are almost always very small if any at all. The statutory account data is supplemented for the period from 1995 to 2002 (inclusive) by financial data provided by the Deloitte^{vii} reports. Data for Earnings Before Interest and Tax (EBIT) was available from Deloitte reports for five club seasons which did not have filed company accounts. In these cases this data has been included as proxy data for retained earnings.

There are two factors unrelated to the implementation of financial regulation which could affect the retained earnings of football clubs that need to be addressed to make comparisons between the periods before and with the financial regulation. The first is the effect of price

inflation. The Retail Price Index^{viii} has been used to deflate retained earnings data to a constant basis at 1995 prices.

The second factor which affects comparisons of profitability over time for football clubs in particular is changes to the grounds (including the land and stadium buildings) or ownership of the grounds of the clubs. These can have an effect on profitability due to a resultant change in income for the club and on the depreciation charge in the profit and loss accounts which can be significant if there are substantial changes to the value of tangible fixed assets in the balance sheets. In 1989 the Taylor Report (1989) recommended that all major stadia convert to an all-seater model, and that all ticketed spectators should have seats, as opposed to some or all being obliged to stand. The EFL introduced regulations that required clubs in the Tier 1 and Tier 2 leagues to comply with this recommendation by August 1994. During the period of the study some clubs in both the Tier 4 and Tier 3 leagues undertook ground development which significantly increased the book value of their tangible fixed assets. A detailed review of the tangible fixed assets of each club in these leagues was conducted to identify significant changes in value. In each case these were investigated to identify the reason and club year data for non-comparable seasons was eliminated from the measure. The reason for this is as follows: the issue for the study is to isolate the effect of the regulation from other financially significant decisions made by clubs so that the comparative effect of the regulation can be assessed. The decisions which many clubs took to improve their grounds were a response to the Taylor Report and not to the regulation so we sought to remove this effect from the study data. The financing source is not the cause of the adjustment.

Liquidity is the ability of a business to meet its short term cash requirements. There are several possible measures of liquidity. A standard accounting measure of liquidity, adopted for this study, is the current ratio. This is defined as:

$$\text{Current ratio} \equiv \frac{\text{Current assets}}{\text{Current liabilities}}$$

Solvency is the ability of a business to meet financial commitments in the long term. A standard accounting measure of solvency is the debt ratio. This is defined as:

$$\text{Debt ratio} \equiv \frac{\text{Total debt}}{\text{Total assets}}$$

Where:

Total debt = Current liabilities + Long-term liabilities

Total assets = Current assets + Fixed assets

This measure is preferred to the balance sheet test of net assets, given by the 1986 Insolvency Act, as a measure as, although it uses the same information, the debt ratio formulation removes the effect of inflation from comparison between different years.

There are two factors unrelated to the implementation of financial regulation which could affect the debt ratio of football clubs that need to be addressed to make comparisons

between the periods before and with the financial regulation. In addition to material changes to tangible fixed assets (as discussed with the profitability measure above) which have a direct effect on the debt ratio measure, the accounting treatment for player contracts has differed both between clubs in the league and within clubs over the period of the study.

For some club seasons amounts received and paid for the transfer of players were accounted for as revenue and expense, respectively, in the profit and loss (or income and expenditure) accounts of the club. However, in 1997 the Accounting Standards Board issued Financial Reporting Standard 10 on Goodwill and Intangible Assets (ASB, 1997) which applied to accounting periods ending on or after 23 December 1998 and required companies to capitalise intangible assets, such as professional football players, which are “... controlled by the reporting entity either through custody or legal protection” (ibid., p. 3, c). Prior to 1999, although there was no requirement for clubs to capitalise the value of their players as intangible assets, Darlington, Northampton Town, Preston North End and Macclesfield Town did so. From 1999 onwards the majority of clubs in the league adopted the practice of capitalising the value of players but the adoption was not universal. In 2005, for example, the accounts of nine clubs in the Tier 4 league did not include a capitalised value for their players either because they were not adopting the practice or because they did not attach a capital value to the playing staff. Furthermore, even when players are accounted for as intangible assets the methods for valuation and amortisation also varied to invalidate strict compatibility both between clubs in the league and within clubs over the period of the study. However, where values for intangible assets are disclosed they are relatively small which suggests that the effect is not likely to materially affect the results of analysis with this measure.

In order to have a measure that increases with solvency this study adopts the inverse of the debt ratio measure defined as:

$$\text{Inverse debt ratio} \equiv \frac{1}{\text{Debt ratio}}$$

3.3. Statistical significance test

The data is both a cross-section of clubs and a time series for each measure over the study period. This suggests the applicability of panel data analysis methods. As the aim of the study is to assess the effect of a policy intervention, this further suggests the event study analysis technique, sometimes called the ‘difference in differences’ (DiD) methodology. However, the ‘open’ aspect of both the Tier 4 league (which would be the ‘treatment group’ in the DiD methodology) and the Tier 3 league (‘control group’) is problematic for this study. Unlike ‘closed’ leagues, such as the North American major sports leagues, the composition of the league changes every season. Furthermore, unlike the elite FIFA national club leagues, there are changes to clubs at both the bottom and top of the leagues every season. Although only 24 clubs participate in each of the leagues each season in the study period (with the exception of the first season in the Tier 4 league with 22 clubs) a total of 70 clubs participated in one or more seasons in the Tier 4 league and 79 clubs did likewise in the Tier 3 league. Overall, 92 clubs participated in either or both of the leagues in the study period. This produces unbalanced panel data with relatively few observations per club distributed over the study period.

In theory, the DiD methodology can be applied to the unbalanced panel with further control variables introduced to explain differences between club values in each period. However, for this data, this is not a practical approach for three reasons. First, there are a number of factors which are unknown to the researcher which could explain the difference between observations for a club in the early years of the study compared to latter years, following a period of absence from the league. Whilst the club has the same name in both periods, and many common factors, the differences (such as, for example, a change of manager) can result in there being, analytically, two separate clubs. Introducing control variables, themselves proxies for the true influence, introduces 'noise' into the analysis and, in this case, it is particularly difficult to identify the relevant 'signal' for each measure. Second, with relatively few observations for a club in either the period before or the period with the financial regulation there is a relatively low level of confidence that the data is representative of the club in that period. Both of these issues mitigate against the use of panel data analysis methods. In addition there is a third issue with the DiD method in particular. This method requires that clubs appear in the treatment group in both the period before and the period with the financial regulation or in the control group in both of these periods. For this study that would result in the exclusion of 16% of retained earnings and 22% of liquidity and solvency available observations. It would also exclude 38% of clubs with available data for retained earnings and 44% of clubs with available liquidity and solvency data. By contrast, no clubs are excluded from any of the measures with the method adopted. Consequently the issues with the cross-section aspect of the data resulting for the 'open' league system indicate that panel data methods are not appropriate and that a time series analysis approach is better suited to this study.

Note also that due to the small number of years and large number of clubs, we have a very well-known problem in panel data estimation, which was first outlined by Nickell (1981) that under these circumstances OLS dynamic panel data estimation is subject to considerable bias. To consider a specific model, let

$$Y_{it} = X_{it}\beta + Z_i\gamma + a_i + \varepsilon_{it}$$

where: β and γ are k and g vectors of coefficients associated with time-varying and time-invariant observable variables respectively. The disturbance ε_{it} is assumed uncorrelated with the columns of (X, Z, a) and has zero mean and constant variance σ^2_{it} conditional on X_{it} , and Z_i . The latent individual effect a_i is assumed to be a time-invariant random variable, distributed independently across individuals, with variance σ^2_i .

Our primary focus is the potential correlation of a_i , with the columns of X and Z . In the presence of such correlations, least squares (OLS) and generalized least squares (GLS) yield biased and inconsistent estimates of the parameters : $\beta, \gamma, \sigma^2_{it}, \sigma^2_i$). The traditional technique to overcome this problem is to eliminate the individual effects in the sample by transforming the data into deviations from individual means. Unfortunately, the OLS coefficient estimates from the transformed data (known as "within-groups" or "fixed effects" estimators) have two important defects: (1) all time-invariant variables are eliminated by the transformation, so that γ cannot be estimated, and (2) under certain circumstances, the within-groups estimator is not fully efficient since it ignores variation across individuals in the sample. The first problem is generally the more serious since in some applications, primary

interest is attached to the unknown coefficients of the time-invariant variables, e.g., to the coefficients of schooling in the wage equation below.

Another possible approach in the simultaneous equations model is to find instruments for those columns of X and Z which are potentially correlated with a_i . However, it may be difficult to find appropriate instruments, excluded from equation (1.1), which are uncorrelated with a_i , and, in any case, such procedures ignore the time-invariant characteristic of the latent effect.

In view of these considerations, for this study, to estimate the statistical significance of the change in both the slope and intercepts of the linear regression trends between breaks of interest in the data the regression line of best fit is estimated with dummy variables for both the intercept and slope^{ix}. The multiple regression equation estimated is:

$$M_t = \beta_1 + \beta_2 Y_t + \beta_3 D_t + \beta_4 (Y_t D_t) + \varepsilon_t$$

Where:

M_t = Measurement ('change difference') variable at year t

Y_t = Year at year t

D_t = Dummy variable

For the period before the break date, $D_t = 0$

For the period after the break date, $D_t = 1$

$Y_t D_t$ = A constructed variable

β_1 = Intercept coefficient at end of trend for period before the break

β_2 = Slope coefficient for trend in period before the break

β_3 = Effect of difference between trends on intercept coefficient

β_4 = Effect of difference between trends on slope coefficient

ε_t = Error term

The coefficients β_3 and β_4 provide estimates of the change between the periods and the standard errors on these estimated coefficients provide the basis for a direct test of whether the trend in the measurement variable is significantly different after the break.

4. Results

The results below graphically show the result of the change in average club measures of profitability, liquidity and solvency (respectively) for the ongoing clubs in the Tier 4 (study) and also in relation to the clubs in the Tier 3 (control) league. The relational graphs show, for each measure, trends (or otherwise) in the difference between the average value for the treatment league (Tier 4) and the control league (Tier 3) for clubs that were in the respective league in both the current and previous year (and consequently not affected by changes in the composition of the leagues in the comparative years). The null hypothesis is that the regulation had no effect on these clubs and, in that case, any trend in the difference between the leagues prior to the introduction of the regulation would be expected to continue in the following period. In each graph a solid vertical line in 2004 indicates the date of the introduction of the SCMP regulation, a dashed vertical line in 2011 indicates the date when the regulatory limit was reduced for the Tier 4 league, a shorter dashed vertical line in 2012

indicates the date of the introduction of the SCMP regulation in graphs with data for the Tier 3 league and a number of sub-periods have been identified.

4.1. Profitability

The average over the study period for season average club retained earnings (after data smoothing and at 1995 prices) was -£234,149. The average loss reduced from £264,459 in the period preceding the introduction of the financial regulation (1995 to 2004) to £203,839 in the period following the introduction of the financial regulation (2005 to 2014). The annual averages per season for the period of the study are shown in Figure 1.

Figure 1 (TO BE INSERTED HERE)

Visual inspection of Figure 1 suggests that the total period of the study can be viewed as comprising four sub-periods (numbered in Figure 1). There was an increase in the average club retained loss in the first period which ended in 2000 at a low point for retained earnings for the whole of the study period. In period 2, from 2000 to 2004, the results improved and by 2004 the average club loss in retained earnings was reduced back to the levels of 1996 and 1998. This improvement appears to have occurred in two stages. The first stage (2001 and 2002) returned the average club loss in retained earnings to around the level in 1999 and in 2004 there was a second improvement. In period 3, from 2004 to 2010 (i.e. immediately following the introduction of the regulation) the loss in average annual club retained earnings was relatively similar each year. The year 2010 may be taken as the end of this period as in 2011 the average club retained earnings improved, for the first time since the financial regulation was introduced, to a level that was higher than in the year in which it was introduced. The results for period 4, from 2010 to 2014, show an initial two year period of improvement (following the first reduction of the regulatory limit and preceding the second reduction of the regulatory limit) which was reversed in the final two years of the study period (following the second reduction of the regulatory limit). Table 1 shows that there was a statistically significant negative difference (at the 1 per cent level) between the slopes of the trends for the periods immediately preceding and following the introduction of the financial regulation and confirms that the improvement which had been occurring in the average profitability of clubs in the Tier 4 league prior to the introduction of the financial regulation changed when the regulation was introduced and was not maintained following its introduction.

Table 1 (TO BE INSERTED HERE)

Figure 2 shows that from 1996 to 2008 there was relatively little difference in the change in the average profitability of the ongoing clubs in the Tier 4 league relative to the Tier 3 league. Both leagues had been improving by similar amounts before 2005 (period 1). After 2005, when the profitability of the average ongoing club in the Tier 4 league was relatively constant the profitability of the average ongoing club in the Tier 3 league tended to reduce and this resulted in the relative improvement in profitability for the Tier 4 league over the immediate period from 2005 to 2008 (period 2).

Figure 2 (TO BE INSERTED HERE)

However, Table 2 shows that the improvement in the relative trend for the Tier 4 league in the period after 2005 is not statistically significant (at the 10 per cent confidence level). This result is not changed if the latter period is extended to 2011.

Table 2 (TO BE INSERTED HERE)

Consequently, the evidence does not support the hypothesis that the club owners in the Tier 4 league took action to improve the profitability of their clubs in response to the introduction of the financial regulation.

4.2 Liquidity

The annual (smoothed data) averages per season for the period of the study are shown in Figure 3. The average over the study period for season average club current ratio was 0.43. It increased from 0.33 in the period preceding the introduction of the financial regulation (1995 to 2004) to 0.53 in the period following the introduction of the financial regulation (2005 to 2014).

Figure 3 (TO BE INSERTED HERE)

Visual inspection of Figure 3 suggests that the total period of the study can be viewed as comprising four sub-periods (numbered in Figure 3). Until 2003 the average club current ratio per season was increasing at a relatively constant rate. From one year before to one year after the introduction of the financial regulation there is an apparent two year step increase in the current ratio which may be viewed as a change period. Then, from 2005, the current ratio continued to increase at a relatively constant level. This suggests that the improvement in the liquidity of clubs in the league may be associated with the introduction of the financial regulation and that the adjustment took approximately two years. Furthermore, the trend following the introduction of the financial regulation was sustained until 2012. Period 4 covers the two years following the reduction in the regulatory limit in 2012. In this period the average club current ratio is reduced in both years and at the end of the study period it is at its lowest level since the financial regulation was introduced. The change period (i.e. period 2) exhibited a 44 per cent increase in the average club current ratio between the trend at the end of period 1 and the trend at the start of period 3. Table 3 shows the difference between the intercept of the trends in the average current ratio of clubs in the league from the end of period 1 to the start of period 3 which was found to be statistically significant whilst there was no statistically significant difference in the rate of change between these periods.

Table 3 (TO BE INSERTED HERE)

Figure 4 shows that in period 1 the change in the average club current ratio of the ongoing clubs in the Tier 4 league improved relative to that of the ongoing clubs in the Tier 3 league in every year until (and including) the year 2000. However, the opposite occurred in three of the following four years preceding the introduction of the financial regulation in the Tier 4 league. There was an exceptionally large improvement in the average current ratio for the

ongoing clubs in the Tier 4 league relative to those in the Tier 3 league in 2005 which was almost 50 per cent greater than the difference in the change in any other year in the study period. As this is the first year after the financial regulation was introduced in the Tier 4 league it suggests that it may have been a positive response by the owners of clubs in the Tier 4 league to the introduction of the financial regulation but that the change may have occurred only in one year, 2005. However, the evidence suggests that this not sustained as the trend in relative liquidity of the average ongoing club in the Tier 4 league worsened over the following four years to 2009.

Figure 4 (TO BE INSERTED HERE)

Consequently, the evidence provides some support for the hypothesis that the club owners in the Tier 4 league may have taken some action to improve the liquidity of their clubs in response to the introduction of the financial regulation but only in the year in which the financial regulation was introduced.

Table 4 shows that the difference between the slope of the trends between the periods from 1995 to 2004 (i.e. period 1) and from 2005 to 2009 (i.e. periods 2 and 3) is statistically significantly (negative) but that the shift in the intercept is not significantly positive. However, if 2005 is viewed as an exceptional year and period 2 is excluded from the post-policy trend, the difference between the slope of the trend compared to period 1 is not significant.

Table 4 (TO BE INSERTED HERE)

4.3. Solvency

The average over the study period for season average club inverse debt ratio was 1.08. It increased from 1.07 in the period preceding the introduction of the financial regulation (1995 to 2004) to 1.10 in the period following the introduction of the financial regulation (2005 to 2014). The averages per season for the period of the study are shown in Figure 5.

Figure 5 (TO BE INSERTED HERE)

Visual inspection of Figure 5 suggests that the average club inverse debt ratio was relatively stable, with a range from 0.90 to 1.10, in the period from 1996 until 2009 which bridges the introduction of the financial regulation. In 2010 the ratio increased to its largest value in the study period but then reduced every year until the end of the study period when it reached its lowest level for the entire period. This period is separated at the introduction of the financial regulation into sub-periods before and with the regulation (denoted by 1 and 2 respectively in Figure 5) and Figure 5 shows the trends for these sub-periods. Table 5 shows that the difference between both the intercept and slope of the trends in the average inverse debt ratio of clubs in the league in period 1 compared to period 2 was not statistically significant (at the 10 per cent level).

Table 5 (TO BE INSERTED HERE)

Figure 6 shows that from 1997 to 2010 the solvency of the average ongoing club in the Tier 4 league was greater than for the Tier 3 league in all but two years. From 1999 to 2004 (period 1) there was relatively little difference between the annual changes in the average club inverse debt ratio for ongoing clubs in the two leagues with the difference between the leagues ranging from +0.16 (in 1999) to -0.06 (in 2001). There was a larger difference in 2005 but that was not particularly exceptional in the context of the study period as there were larger differences in 1997 and 2010 and a similar difference in 1998. Otherwise the difference between the annual changes for the leagues only ranged from -0.05 (in 2006) to 0.19 (in 2007) until (and including) 2009 (i.e. in period 2).

Figure 6 (TO BE INSERTED HERE)

Consequently the evidence does not support the hypothesis that the club owners in the Tier 4 league took action to improve the solvency of their clubs in response to the introduction of the financial regulation. Table 6 shows that the difference between the trends for periods 1 and 2 is not statistically significant (at the 10 per cent level).

Table 6 (TO BE INSERTED HERE)

5. Possible interpretation of results

“Is there any point to which you would wish to draw my attention?

To the curious incident of the dog in the night-time.

The dog did nothing in the night-time.

That was the curious incident, remarked Sherlock Holmes.”

(Sir Arthur Conan Doyle ^x)

It should have been expected that the SCMP regulation introduced by the EFL in 2004 would result in an improvement, on average, in the financial sustainability of the clubs in the league. Curiously, the main finding of the research is that it resulted in almost no improvement. As such, this calls into question the notion that financial regulation is designed and implemented simply to achieve better financial performance. One possible explanation for the lack of improvement in financial sustainability is that the structural characteristics inherent within the professional football industry - the imperative to spend on talent and compete on the field - are so strong that one attempt at financial regulation is simply unable to counter these forces and the inherent desire for utility maximisation prevails. However, if the regulation was indeed introduced to address financial instability, then it is clear from our results that the wage-turnover ratio needed to be set at a much lower level and therefore leads us to question the extent to which the SCMP was actually intended to change clubs behaviour. For this, we need to move beyond conceptualising financial regulation as a technical exercise and think about alternative explanations as to why this regulation was introduced.

We put forward the suggestion that financial regulation in professional sports can also be seen as a ‘legitimising exercise’: in this case, the regulation was introduced as a way for the EFL to maintain organisational legitimacy in the face of governmental pressure (in particular). The increasing acceptance of the need for financial regulation could be seen as an institutional force, and as such, organisations that have regulatory power, such as the EFL, are in a position

where they have to be seen to provide an adequate response to the concerns around financial instability. That the implementation of the SCMP resulted in no improvement in financial sustainability, despite this being the reason for the regulation suggests that there are legitimising processes at play here. Indeed, it suggests that the SCMP regulation is an institutionalized activity “for which there is no obvious economic or technical purpose” and thus cannot be explained by rational choice frameworks (Oliver, 1997, p.699).

Instead, we argue that the implementation of the regulation was to appease government concerns over the financial state of the football industry. For many years there had been concern that professional football clubs in England were not operating on a financially sound basis (e.g. Political and Economic Planning, 1966; Department of Education and Science, 1968). In the Football Task Force (1999) report to the Minister for Sport, there was a focus on commercial and regulatory issues. When the ITV Digital contract collapsed in 2002 it was followed by an unprecedented number of football clubs in the EFL entering into the process of Administration and increased the pressure on the football authorities to introduce regulation to improve the financial sustainability of clubs in the league (Walters and Hamil, 2013). It could be argued that the organisation and regulation of professional football represents a highly institutionalised context out of which formal organisational structures, such as the EFL have arisen. In the context of poor financial performance across member clubs, the EFL was particularly sensitive to the need to appear to address this crisis in a formal, rational way. By introducing the SCMP, the EFL was signalling its social fitness in order to win social support and ensure legitimacy and support from government as a ‘definitive’, and consequently most influential, stakeholder (Mitchell et al., 1997). By not introducing the regulation the EFL ran the risk of lacking a legitimised account of their activities and it would have left them open to claims of negligence (Meyer and Rowan, 1977).

In this sense, the SCMP could be seen as a reactive, defensive strategy designed to challenge the threat of legitimacy (Ashforth and Gibbs, 1990). At the same time, to introduce the regulation it was necessary for the EFL to have the support of the owners of the clubs in the league (as ‘dominant’ stakeholders in the model of Mitchell et al., 1997). In the absence of access to documented evidence from the EFL relating to the discussions with the club owners that took place around the period that this became an agenda item it is not possible to definitively ascribe a narrative to the origins of the type of regulation, the binding limit or the enforcement sanctions that would be applied for the regulation that was implemented. However, it is notable that whilst the worst affected clubs were in the higher leagues^{xi}, the EFL decided to introduce regulation for the lowest league.

Boxenbaum and Jonsson (2008) argue that organisations that seek to achieve legitimacy from decoupled symbolic activity must avoid close inspection or else they risk being exposed as frauds (Boxenbaum and Jonsson, 2008). Until now, there has not been any close inspection of the effect of the regulatory measures. However, previous research on the Financial Fair Play regulation implemented by UEFA suggested that the willingness and capacity of the regulatory body to enforce its regulations was questioned by professional accountants and others with experience of working in and around the business side of football clubs (Morrow, 2014). Walters and Hamil (2013, p.740) go further and argue financial regulation in professional football is unlikely to occur “where internal governance structures of regulatory bodies are constituted in such a way as to inhibit the process of decision-making; where

powerful actors maintain control of significant financial resources and have a desire to limit financial regulation; where minor actors do not have sufficient power and leverage; and where the government is unwilling to intervene and use legislation". In the case of the EFL, it could be argued that two of the four circumstances identified, namely where powerful actors maintain control of significant financial resources and have a desire to limit financial regulation and where the government is unwilling to intervene and use legislation, are relevant here.

As the EFL needed the acceptance of the clubs to the adoption of the regulation it could have been that, in view of the pressure to at least be seen to act in response to the financial failures of the clubs following the collapse of the ITV Digital, an agreement was reached with the clubs in the Tier 4 league whereby the regulation would, in practice, require little or no change in their behaviour and consequently have little or no effect on the clubs. This would be an example of 'decoupling' in response to the conflicting pressures of stakeholders whereby the EFL was able to achieve 'ceremonial conformity' for legitimacy whilst engaging in 'business as usual'. Analysis of both the financial measures and the measures of the sporting ambition of the club owners support this hypothesis. The First Inquiry Report from the All Party Parliamentary Football Group in February 2004, which states that they "... welcome the move by the ... Football League to introduce wage caps as a percentage of club turnover ..." (All Party Parliamentary Football Group, 2004, p. 11) suggests that the regulation introduced also appeased the political wishes of the government.

It could however be considered that the mere fact that the club owners accepted the principle of the financial regulation was a success for the EFL. As the regulation was only changed in 2011, to reduce the regulatory limits, there is not a sufficient period with the data available to the study to assess whether the regulation then became effective. Although it may be noted that two clubs (Port Vale, March 2012; and Aldershot Town, July 2013 - relegated prior to entering administration) which were in the league in the period from the reduction of the limit in 2011 to the end of the study period in 2014 had instances of insolvency which is a similar level per annum as in the previous periods both with and without the financial regulation.

There is a theoretical range of possible responses, as proposed by Oliver (1991), that the EFL could adopt as a result of the demand of the government for the EFL to address the perceived crisis. It could be argued that the EFL chose the response strategy of 'compromise'. The strategic response of 'compromise' is associated by Oliver (1991) with the tactics of 'balance', 'pacify' and 'bargain'. 'Balance' is the organisational attempt to achieve parity among or between multiple stakeholders and internal interests. The 'pacify' tactic may be employed by an organisation which "rails against the interference" but wishes also not to "bite the hand that feeds them". With the 'bargaining' tactic the organisation aims to extract some concessions from an external constituent in its demands or expectations. Of these tactics, the tactic of 'balance' appears to be consistent with the finding of this study. However, if the EFL imposed the financial regulation knowing that it would not be effective, the response strategy could instead be viewed as the 'manipulative' option. This is "... the most active response to these pressures because it is intended to actively change or exert power over the content of the expectations themselves or the sources that seek to express or enforce them." (ibid., p. 157). This could also suggest a degree of 'regulatory capture' as the EFL Board

members who are also club chairmen or owners, and hence subject to the regulation, could have an interest in resisting regulation affecting their clubs.

It is possible that the agreement of the government, as a powerful stakeholder, was achieved without their explicit recognition or understanding that the regulation introduced would be ineffective. Nystrom and Starbuck (1984) point out that, “managers construct organizational facades that mislead external stakeholders, organizational members, researchers, other managers, and even themselves.” (ibid., p. 182). In either event, with the SCMP regulation as devised and implemented in the Tier 4 league in 2004:

- 1) The EFL may have succeeded in introducing an acceptance of financial regulation by club owners in the league.
- 2) The EFL may also have succeeded in providing an acceptable response for government (and other stakeholders who wanted the EFL to address the problem) even though it was not effective in making clubs in the league significantly more able to withstand general financial shocks or reduce the instances of insolvency.
- 3) One or more of the type of regulation, the binding limit or the enforcement of the regulation was not effective.

Both the first and second of these can be seen as being focused implicitly on the need of the EFL for legitimacy as the regulator of the competition and suggest that, although the SCMP did not achieve its explicitly stated objective, it had a symbolic or ceremonial role in enhancing the legitimacy of the EFL organisation. The third underpins this conclusion.

6. Conclusions

This paper provides an assessment of the effect of the SCMP regulation introduced by the EFL in the Tier 4 league of football in England in 2004 on the financial sustainability of clubs in the league. The theoretical argument that the financial regulation would improve the financial sustainability of clubs in the league is based on the assumption that club owners will respond to the regulation and that their responses will be consistent with the aim of the regulation. This paper has analysed the evidence of three aspects of financial sustainability; profitability, liquidity and solvency. It has shown that the introduction of the SCMP regulation in 2004, with the initial limits, did not achieve the stated aim of improving the financial sustainability of clubs in the league. This is a particularly important finding since a wider concern about the financial sustainability of professional clubs and the integrity of sporting competition has led to the introduction, in 2012, of financial regulation in all the professional football leagues in England and by UEFA for its club competitions. As there is currently insufficient empirical evidence to evaluate the effectiveness of these regulations the conclusions from this research should inform the EFL, and competition organisers and regulators more generally, to ensure that the combination of the type of regulation, the binding limit and the enforcement of the regulation is effective.

However, our analysis of the EFL case suggests that the introduction of the regulation was in part a ‘legitimising exercise’ instigated by the EFL to garner support within the institutional environment. In particular, it was politically acceptable to the government, as the EFL was seen to be acting to take reasonable steps to avert the financial failure of football clubs in

future, and acceptable for the clubs in the league, if they did not anticipate any effect from the regulation. Organisational institutionalism provides a possible theoretical explanation for why this outcome might have been acceptable to the EFL as, by decoupling the regulation from the on-going 'business as usual', the regulation had a symbolic or ceremonial role which allowed the EFL to legitimise its administrative and regulatory role and thereby counter any potential government intervention and thereby enhanced its prospects for survival as an organisation.

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ⁱ The term 'hard' salary cap is taken to refer to regulations which do not permit the limit to be exceeded, unlike 'soft' salary cap regulation, such as the 'luxury tax' applied to clubs in Major League Baseball in the United States of America, which requires clubs to pay a proportionate 'tax' on spending above a threshold limit.

ⁱⁱ Sources for the ITV Digital background:

(a) ONdigital/ITV Digital history. Available at: <http://www.onhistory.co.uk> [Accessed: 28 April 2017]

(b) Theguardian.com (8 February 2006). League sues lawyers over ITV Digital deal. Available at: <https://www.theguardian.com/media/2006/feb/08/football.itvdigital> [Accessed: 28 April 2017]

(c) Conn (2004, pp. 138-139)

ⁱⁱⁱ This background was provided by the EFL in email correspondence on 9 March 2017.

^{iv} Note that this is different to (and not) an assessment of compliance with the regulation.

^v The SCMP regulation was not introduced in the Tier 3 league until 2012.

^{vi} The SCMP regulation was introduced for League One (i.e. Tier 3 league) clubs with 2011/12 as a transitional season with the limit set at 75 per cent and no sanctions applied but it became effective in 2012 for the 2012/13 season with a limit of 65 per cent reducing to 60 per cent for 2013/14 with sanctions applying (in the form of transfer embargoes) in both seasons. (House of Commons Culture, Media and Sport Committee, 2013).

^{vii} The reference to 'Deloitte reports' is taken generically to refer to an Annual Review of Football Finance published by Deloitte (since 2004) and previously by Deloitte & Touche which followed from an annual Survey of Football Club Accounts first published by Touche Ross (in 1992).

^{viii} Available at: <http://www.wolfbane.com/rpi.htm> [Accessed 4 January 2016] Note also that this index was adopted as the generally recognised measure of inflation used by the government in the study period – although they switched to the Consumer Price Index in later years. Consideration was given to creating a 'Football Inflation Index' but lack of sufficient income data made this measure too volatile and unreliable.

^{ix} The method is presented in, for example, Stewart and Wallis (1981, pp. 175-178).

^x Quotation from *Silver Blaze*, a story by Sir Arthur Conan Doyle. In: Doyle, A. C. (1987). *The memoirs of Sherlock Holmes*. Penguin Books, p. 28.

^{xi} Of the sixteen instances of insolvency proceedings in 2002 and 2003 only five involved clubs in the Tier 4 league and one of those (York City) is reported (by Conn, 2004) to have been due to other cause.

Figure 1: Average club retained earnings (£'000 at 1995 prices) by season and sub-period trends, Tier 4 league, 1995-2014

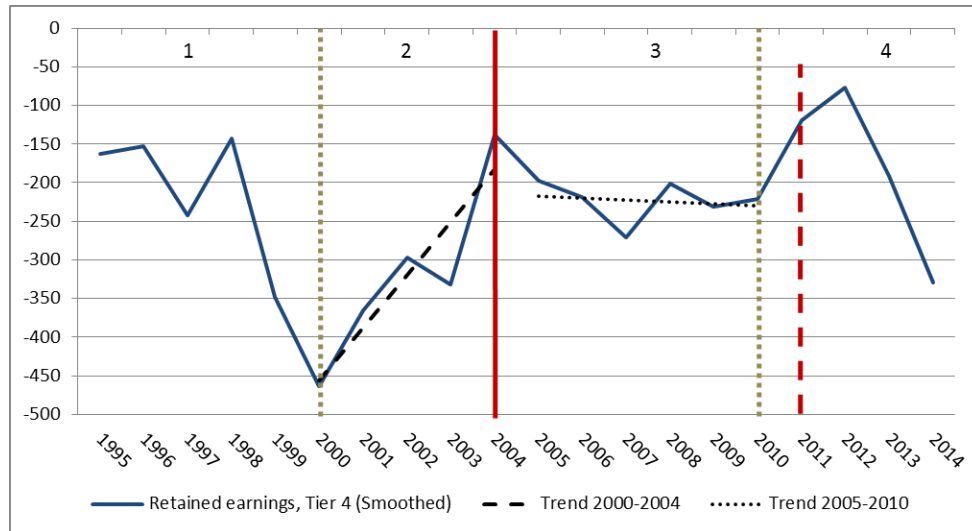


Figure 2: Difference between change in Tier 4 and Tier 3 league average ongoing club retained earnings (£'000 at 1995 prices) and sub-period trends, 1995-2014

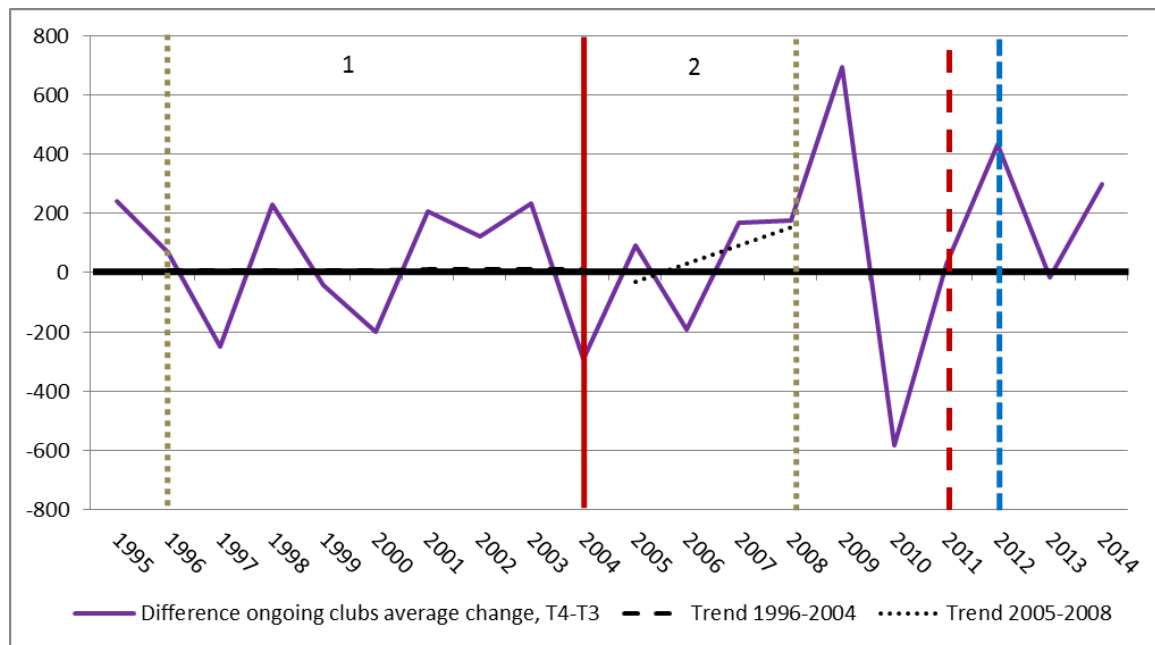


Figure 3: Average club current ratio by season and sub-period trends, Tier 4 league, 1995-2014

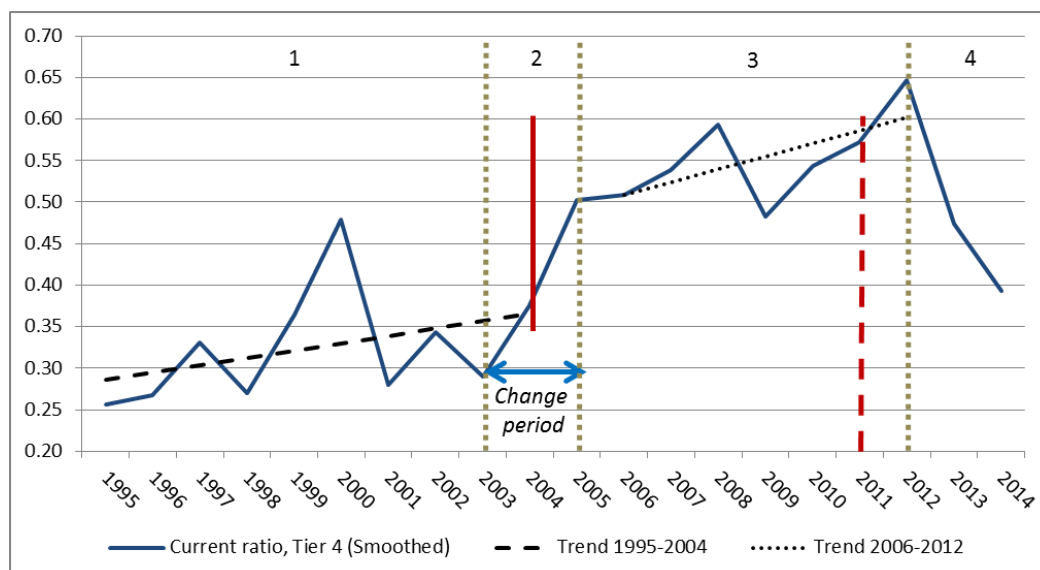


Figure 4: Difference between change in Tier 4 and Tier 3 league average ongoing club current ratio and sub-period trends, 1995-2014

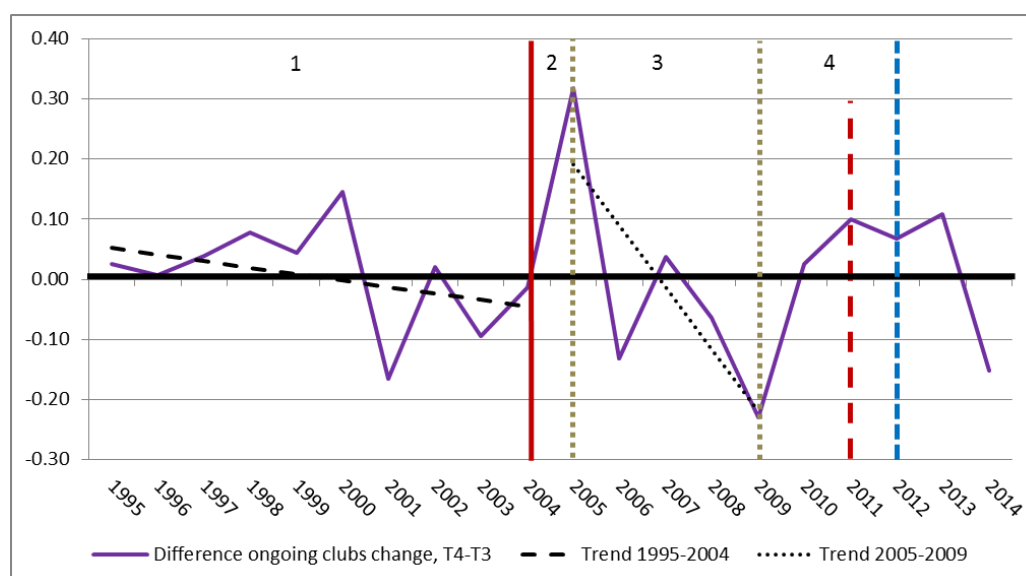


Figure 5: Average club inverse debt ratio by season and sub-period trends, Tier 4 league, 1995-2014

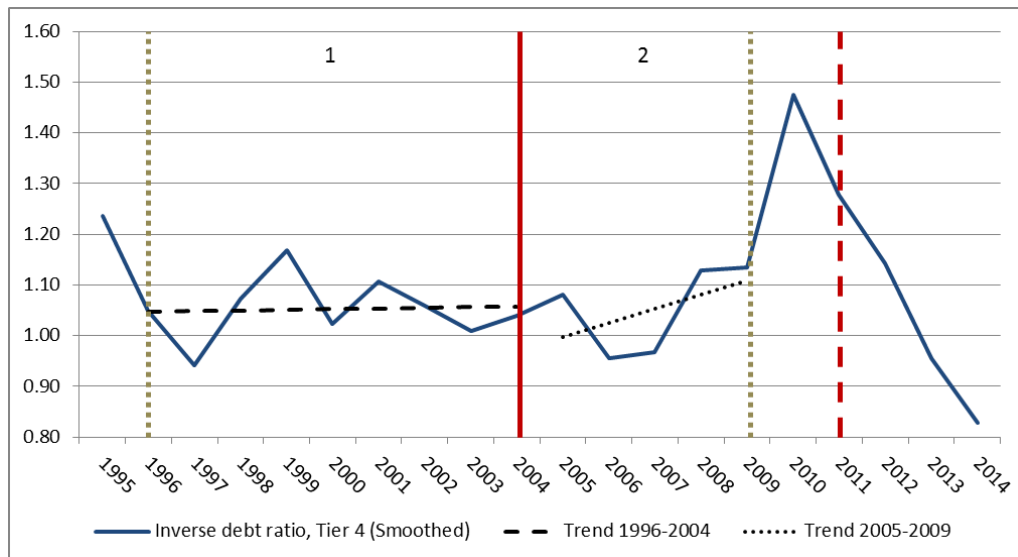


Figure 6: Difference between change in Tier 4 and Tier 3 league average ongoing club inverse debt ratio and sub-period trends, 1995-2014

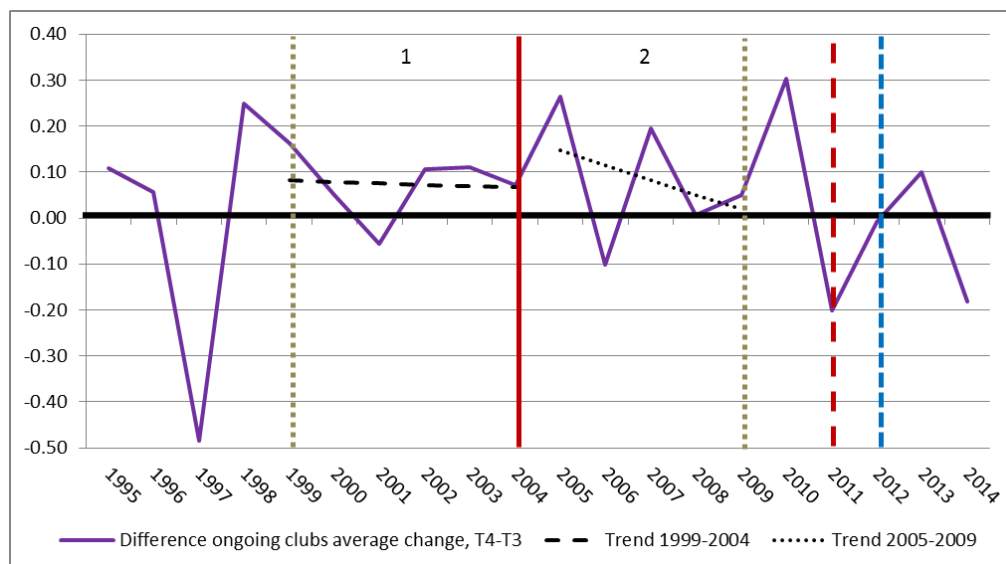


Table 1: Shift and significance of difference in trend for the seasonal club average of retained earnings (at 1995 prices), Tier 4 league, between the periods 2000-2004 and 2005-2010

	Intercept shift at 2005	Slope shift (per annum)
Coefficient (£)	-103,159	-70,767
Significance (p-value)	0.190	0.003

Number of years = 11

Table 2: Difference and significance of change in trend for the difference between the annual change in average ongoing club retained earnings (at 1995 prices) for the Tier 4 and Tier 3 leagues between the periods 1996-2004 and 2005-2008

	Intercept shift at 2005	Slope shift (per annum)
Coefficient (£)	-47,259	61.871
Significance (p-value)	0.859	0.365

Number of years = 13

Table 3: Shift and significance of difference in trend for the seasonal club average current ratio, Tier 4 league, between 1995-2004 and 2005-2012

	Intercept shift at 2005	Slope shift (per annum)
Coefficient	0.12	0.01
Significance (p-value)	0.009	0.378

Number of years = 18

Table 4: Difference and significance of change in trend for the difference between the annual change in average ongoing club current ratio for the Tier 4 and Tier 3 leagues between the periods 1995-2004 and 2005-2009

	Intercept shift at 2005	Slope shift (per annum)
Coefficient	0.24	-0.09
Significance (p-value)	0.126	0.043

Number of years = 15

Table 5: Shift and significance of difference in trend for the seasonal club average inverse debt ratio, Tier 4 league, between 1996-2004 and 2005-2009

	Intercept shift at 2005	Slope shift (per annum)
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Coefficient	-0.06	0.03
Significance (p-value)	0.446	0.292

Number of years = 14

Table 6: Difference and significance of change in trend for the difference between the annual change in average ongoing club inverse debt ratio for the Tier 4 and Tier 3 leagues between the periods 1999-2004 and 2005-2009

	Intercept shift at 2005	Slope shift (per annum)
Coefficient	0.08	-0.03
Significance (p-value)	0.593	0.533

Number of years = 11